

What is claimed is:

1. An engine variable valve timing system comprising:

a hydraulic variable intake phase mechanism and a hydraulic variable exhaust phase mechanism respectively provided on the ends of an intake camshaft and an exhaust camshaft that respectively vary the  
5      respective phases of the camshafts, the variable phase mechanisms respectively having advancing hydraulic pressure chambers and retarding hydraulic pressure chambers;

an intake hydraulic pressure control valve and an exhaust  
10      hydraulic pressure control valve that respectively control the hydraulic pressure supplied to the advancing hydraulic pressure chambers and the retarding hydraulic pressure chambers of the variable phase mechanisms;

an intake-side advancing hydraulic line and an intake-side  
15      retarding hydraulic line that respectively connect the intake hydraulic pressure control valve to the advancing hydraulic pressure chamber and the retarding hydraulic pressure chamber of the variable intake phase mechanism; and

an exhaust-side advancing hydraulic line and an exhaust-side  
20      retarding hydraulic line that respectively connect the exhaust hydraulic pressure control valve to the advancing hydraulic pressure chamber and the retarding hydraulic pressure chamber of the variable exhaust phase mechanism;

wherein portions of the intake-side advancing hydraulic line and  
25      the intake-side retarding hydraulic line respectively constitute annular grooves for advancing and retarding provided on the intake camshaft bearing surface of the cam cap which supports the camshaft, and portions of the exhaust-side advancing hydraulic line and the exhaust-side retarding hydraulic line respectively constitute annular grooves for  
30      advancing and retarding provided on the exhaust camshaft bearing

surface of the cam cap which supports the camshaft;

wherein the annular groove for retarding on the intake camshaft bearing surface and the annular groove for advancing on the exhaust camshaft bearing surface are respectively provided in the center in the width direction of their respective bearing surfaces.

2. An engine variable valve timing system according to claim 1, wherein the annular groove for advancing on the intake camshaft bearing surface and the annular groove for retarding on the exhaust camshaft bearing surface of the cam cap are respectively provided near the edges of their respective bearing surfaces in the width direction.

3. An engine variable valve timing system according to claim 2, wherein the annular groove for advancing on the intake side and the annular groove for retarding on the exhaust side are provided near the edges of their respective bearing surfaces in the width direction, on the side close to respective variable phase mechanisms.

4. An engine variable valve timing system according to claim 1, wherein the variable exhaust phase mechanism is provided with a spring that presses the camshaft in the advancing direction with respect to a crankshaft-side rotating member.

5. An engine variable valve timing system according to claim 1, wherein the exhaust hydraulic pressure control valve is attached to the cam cap toward the vertical direction, and the portion of the exhaust-side advancing hydraulic line that extends from the exhaust hydraulic pressure control valve to the annular groove is provided in a position above the portion that extends from the exhaust hydraulic pressure control valve to the annular groove.